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ABSTRACT

A National Assessment of Educational Progress (NAEP) statistical analysis deals with the amount of homework of 17-year-old students in 1976, the amount of television viewing, and presence or absence of various items in the home (e.g., a specific place for study, magazines, etc.). The data suggest that a higher performance on mathematics assessment task is associated with: (1) more reported homework; (2) less reported television viewing; and (3) more reported items in the home. The narrative is supported by tables of descriptive statistics. (MP)

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ANALYSIS OF SUPPLEMENTAL BACKGROUND QUESTIONS ON HOMEWORK AND TV

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Introduction and Summary

In 1976, 17-year-old students were administered a supplemental background questionnaire as a part of a limited assessment of mathematics.

This summary presents the data obtained for three of the background questions. (See Chart 1.) The questions reported here dealt with amount of homework, amount of television viewing and presence or absence of various items in the home.

The data were obtained from those 10,014 students who participated in the mathematics assessment. The mathematics items were administered in two similar booklets, with about 5,000 students responding to each booklet. The sample for each booklet was designed to be representative of all 17-year-olds in school at the time of the assessment.

Mathematics items used in the assessment dealt with the following:

a. Numbers and numeration concepts
b. Properties of numbers and operations
c. Arithmetic computations
d. Measurement and estimation
e. Mathematical sentences
f. Geometry
g. Statistics and graphics
h. Personal and consumer math

For each student, the percent of items that were answered correctly was computed. Tables 1-3 present the mean percents correct (the average of students' percents of correct responses) for response categories and the percentage of students selecting a particular category. Guides for standard errors are presented below.

The general trends suggested by the data are:

1. Higher performance is associated with more reported homework.
2. Higher performance is associated with less reported television viewing.
3. The highest performance was noted for respondents reporting the most homework and the least television viewing.
4. The more items that are reported in the home, the higher the observed performance on the mathematics items.

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Guides to Standard Errors

For the observed percentages of respondents a conservative upper bound on standard errors should be provided by assuming a percentage of 50, a design effect of 4 and a sample size of 10,000. This provides a standard error of 1.00%.

Mean percents correct are based on varying sample sizes. Approximate standard errors were obtained by averaging observed standard errors from orthogonal half sample replications.

Approximate Standard Errors of Percents Correct by Percent of Sample.

Percent of Sample	Approx. SE of Percent Correct
Under 0.5	Unreliable
0.5 - 0.9	4.0
1.0 - 4.9	2.5
5.0 - 9.0	2.0
10.0 - 19.0	1.5
20.0 - 49.9	1.0
50.0 or higher	<1.0

Non-response

NAEP developed the sample of students from school lists of students. About 83% of those sampled actually took assessment packages. Of those students who were assessed, there was additional non-response on an item either because they did not wish to respond or because they did not have time to respond. The percentage not responding averaged around 3% on items dealing with homework and television viewing. Non-response averaged 8% for items in the home.

Chart 1. Background Questions

Approximately what is the average amount of time you spend on homework a week?

- ⬭ No homework is ever assigned
- ⬭ I have homework but don't do it
- ⬭ Less than 5 hours a week
- ⬭ Between 5 and 10 hours a week
- ⬭ More than 10 hours a week

How much television did you watch last night?

- ⬭ None
- ⬭ One hour or less
- ⬭ 1 to 2 hours
- ⬭ 2 to 3 hours
- ⬭ 3 to 4 hours
- ⬭ 4 to 5 hours
- ⬭ 5 to 6 hours
- ⬭ 6 hours or more

Which of the following do you have in your home? (Fill in one oval on each line.)

	Have	Do not have
A. A specific place for study	⬭	⬭
B. Daily newspaper	⬭	⬭
C. Dictionary	⬭	⬭
D. Encyclopedia or other reference books	⬭	⬭
E. Magazines	⬭	⬭
F. Record player	⬭	⬭
G. Tape recorder or cassette player	⬭	⬭
H. Color television	⬭	⬭
I. Typewriter	⬭	⬭
J. Electric dishwasher	⬭	⬭
K. Two or more cars or trucks that run	⬭	⬭

Table 1a. Mean Percents Correct for Mathematics Items

TV Last Night	Average Amount of Time Spent on Homework Per Week: No Homework Assigned	Homework Assigned, But Do Not Do	Less Than 5 Hours	5-10 Hours	More Than 10 Hours	All
Minimal: None or less than 1 hour	55.0	65.4	67.2	72.8	79.7	68.7
Moderate: 1-3 hours	53.4	64.4	65.5	70.7	72.0	66.6
Heavy: 3-5 hours	52.1	58.7	60.5	66.7	62.1	61.4
Very Heavy: 5 hours or more	47.1	54.7	55.8	57.1	54.8	55.0
All	53.4	63.4	65.1	70.8	74.8	66.2

Table 1b. Percentage of Students by Average Amount of Time Spent on Homework per Week and Number of Hours of TV Watched the Previous Night

Minimal: None or less than 1 hour	3.1	3.4	24.2	14.7	3.2	48.6
Moderate: 1-3 hours	1.9	2.2	18.3	10.3	1.9	34.6
Heavy: 3-5 hours	1.0	.8	6.5	3.2	.4	11.9
Very Heavy: 5 hours or more	.5	.4	2.6	1.1	.3	4.9
All	6.5	6.8	51.6	29.3	5.8	100.0*

*Includes respondents only. About 3% of students in the assessment did not respond to these questions.

Table 2a. Mean Percents on Correct Mathematics Items For Responses to Questions About Items 17-Year-Olds Have at Home

Which of the following do you have in your home? (Fill in one oval on each line.)

	N/R *	Have	Do not have
A. A specific place for study	56.7	67.2	66.6
B. Daily newspaper	56.8	68.0	60.4
C. Dictionary	57.0	67.2	47.3
D. Encyclopedia or other reference books	57.2	67.8	58.0
E. Magazines	57.0	67.8	55.2
F. Record player	57.6	67.1	59.7
G. Tape recorder or cassette player	57.4	67.3	64.4
H. Color television	57.6	67.4	64.6
I. Typewriter	57.2	69.0	59.4
J. Electric dishwasher	56.5	72.2	62.4
K. Two or more cars or trucks that run	57.1	63.4	61.2

Table 2b. Percentage of Students by Response Category

Which of the following do you have in your home? (Fill in one oval on each line.)

	N/R *	Have	Do not have
A. A specific place for study	7.5	55.1	37.4
B. Daily newspaper	7.0	79.8	13.2
C. Dictionary	6.8	91.7	1.5
D. Encyclopedia or other reference books	7.3	84.1	8.7
E. Magazines	7.2	86.1	6.7
F. Record player	7.1	89.9	3.0
G. Tape recorder or cassette player	7.8	80.0	12.3
H. Color television	7.7	75.9	16.5
I. Typewriter	8.0	72.3	19.7
J. Electric dishwasher	9.3	43.8	47.0
K. Two or more cars or trucks that run	8.1	73.5	18.4

*N/R = non response

Table 3. Mean Percent Correct on Mathematics Items and Percent of Students by Number of Items 17-Year-Olds Reported Having at Home

No. of Items 17-Year-Olds Reported Having at Home	Mean Percent Correct on Math Items	Percent of Students
1,2	45.2	0.7
3,4	51.7	2.0
5	52.0	2.5
6	57.3	4.9
7	60.7	8.5
8	64.2	15.1
9	67.6	22.7
10	69.8	25.1
11	73.4	18.5

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